

IN THE CLAIMS:

Please cancel claims 1-47 without prejudice or disclaimer, and substitute new claims 48-94 therefor as follows:

Claims 1-47 (Cancelled).

48. (New) A process for manufacturing a tyre comprising the steps of:

providing an elastomeric layer on an outer surface of a toroidal support, said surface having a shape substantially matching a shape of an inner surface of said tyre;

manufacturing a green tyre by assembling the structural elements thereof on the toroidal support provided with the elastomeric layer;

introducing the green tyre supported on the toroidal support into a moulding cavity whose inner walls have a shape substantially matching a shape of an outer surface of the tyre;

at least partially precuring the elastomeric layer by heating the toroidal support;

introducing a primary working fluid into at least one diffusion gap defined between the inner surface of the green tyre and the toroidal support in order to press the outer surface of the green tyre against the inner walls of the moulding cavity; and

curing the green tyre,

wherein at least a portion of the radially inner surface of the toroidal support is provided with a plurality of protruding elements.

49. (New) The process according to claim 48, wherein the protruding elements are in the form of elongated ribs.

50. (New) The process according to claim 48, wherein the protruding elements define a honeycomb structure.

51. (New) The process according to claim 48, wherein the protruding elements protrude inwardly the toroidal support.

52. (New) The process according to claim 48, wherein the protruding elements are obtained in a thickness of the toroidal support.

53. (New) The process according to claim 48, wherein the protruding elements are produced separately from the toroidal support and successively coupled to the radially inner surface thereof.

54. (New) The process according to claim 53, wherein the coupling of the protruding elements to the toroidal support is performed by welding.

55. (New) The process according to claim 48, wherein the step of at least partially precuring the elastomeric layer is carried out after the step of providing the elastomeric layer on the outer surface of the toroidal support.

56. (New) The process according to claim 48, wherein the step of at least partially precuring the elastomeric layer is carried out after the step of manufacturing the green tyre on said toroidal support.

57. (New) The process according to claim 48, wherein the heating of the toroidal support is carried out by introducing the primary working fluid into said at least one diffusion gap.

58. (New) The process according to claim 57, wherein the outer surface of the toroidal support is heated to a predetermined working temperature for precuring the inner surface of the green tyre.

59. (New) The process according to claim 48, further comprising the step of pressing the inner surface of the green tyre against the outer surface of the toroidal support through at least one secondary working fluid.

60. (New) The process according to claim 59, wherein during said step of pressing the pressure of the secondary working fluid is greater than the pressure of the primary working fluid.

61. (New) The process according to claim 48, wherein the pressure of the primary working fluid is lower than 16 bar.

62. (New) The process according to claim 59, wherein the pressure of the secondary working fluid is 8 to 18 bar.

63. (New) The process according to claim 48, wherein during the step of pressing the outer surface of the green tyre against the walls of the moulding cavity by means of the primary working fluid, the pressure of the primary working fluid is 18 to 35 bar.

64. (New) The process according to claim 48, wherein the temperature of the primary working fluid is 170° C to 210° C.

65. (New) The process according to claim 48, wherein the primary working fluid is steam, nitrogen, air, or a mixture thereof.

66. (New) The process according to claim 59, wherein the step of pressing is carried out before the step of heating the toroidal support.

67. (New) The process according to claim 59, wherein the step of pressing is carried out after the step of heating the toroidal support.

68. (New) The process according to claim 59, wherein the step of pressing is carried out simultaneously with the step of heating the toroidal support.

69. (New) The process according to claim 52, wherein the protruding elements are obtained by milling.

70. (New) A toroidal support for manufacturing a green tyre thereupon, the support comprising a plurality of circumferential sectors defining an outer surface of the toroidal support, said outer surface having a shape which substantially matches the shape of an inner surface of said green tyre, wherein at least a portion of a radially inner surface of the toroidal support is provided with a plurality of protruding elements.

71. (New) The toroidal support according to claim 70, wherein the protruding elements are in the form of elongated ribs.

72. (New) The toroidal support according to claim 70, wherein the protruding elements define a honeycomb structure.

73. (New) The toroidal support according to claim 70, wherein the protruding elements protrude inwardly the toroidal support.

74. (New) The toroidal support according to claim 70, wherein the protruding elements are obtained in a thickness of the toroidal support.

75. (New) The toroidal support according to claim 70, wherein the protruding elements are produced separately from the toroidal support and successively coupled to the radially inner surface thereof.

76. (New) The toroidal support according to claim 75, wherein the coupling of the protruding elements to the toroidal support is performed by welding.

77. (New) The toroidal support according to claim 70, wherein the protruding elements are distributed on the radially inner surface of the toroidal support corresponding to a crown portion of the green tyre.

78. (New) The toroidal support according to claim 70, wherein the protruding elements are distributed on the radially inner lateral surfaces of the toroidal support corresponding to sidewalls of the green tyre.

79. (New) The toroidal support according to claim 70, wherein the protruding elements are distributed on outer surfaces of a sector attachment plate of the toroidal support.

80. (New) The toroidal support according to claim 70, wherein the protruding elements are disposed parallel to each other.

81. (New) The toroidal support according to claim 70, wherein a pitch between two successive protruding elements is substantially constant along the development of said protruding elements.

82. (New) The toroidal support according to claim 77, wherein the protruding elements lie in a plane substantially perpendicular to an equatorial plane of the toroidal support.

83. (New) The toroidal support according to claim 77, wherein the protruding elements extend in a direction substantially perpendicular to a circumferential direction.

84. (New) The toroidal support according to claim 77, wherein the protruding elements extend in a direction substantially parallel to a circumferential direction.

85. (New) The toroidal support according to claim 78, wherein the protruding elements lie in a plane which is inclined at an angle with respect to a plane parallel to an equatorial plane of the toroidal support.

86. (New) The toroidal support according to claim 85, wherein said angle is 0° to 45° .

87. (New) The toroidal support according to claim 85, wherein said angle is substantially constant along the development of the protruding elements.

88. (New) The toroidal support according to claim 85, wherein said angle increases in moving away from the equatorial plane of the toroidal support.

89. (New) The toroidal support according to claim 70, wherein the protruding elements are continuous along the radially inner surface of the sector.

90. (New) The toroidal support according to claim 70, wherein the protruding elements present at least one interruption along a longitudinal development.

91. (New) The toroidal support according to claim 70, wherein the circumferential sides of the sectors are provided with notches radially extending along a thickness of the toroidal support.

92. (New) The toroidal support according to claim 70, wherein the lateral inner surfaces of the toroidal support are concave.

93. (New) The toroidal support according to claim 92, wherein said lateral inner surfaces are parallel to a radially outer profile of the toroidal support.

94. (New) The toroidal support according to claim 70, wherein lateral inner surfaces of the toroidal support are parallel to an equatorial plane of the toroidal support.